The Research on the Sodium Bicarbonate Solution Cures the Ryegrass Hay

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The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Key word :sodium bicarbonate solution ,drying rate ,ryegrass hay , leaf-stem ratio ,density

Introduction The Chongqing weather , with cloudy rainy and fog in the autumn and winter , relative humidities averaging 72% , and sometimes achieving 95% makes it very difficult to cure hay using only solar drying .Using sodium bicarbonate to destroy plant surface wax structure , promotes moisture evaporation from the plant , this increases the forage drying rate , reduces loss of leaf blades , and preserves forage nutritional value . This process also increases the leaf :stem ratio and improves smell of the hay .

Material and method The experimental test field is located on the Southwest University Rongchang campus . Annual precipitation averages 1099mm . Annual accumulated temperature is 6383℃ , and annual hours of sunshine total 1083h .When the weather is sunny , the temperature is 18-32℃ , the humidity 50%-70% . In the sunlight the surface temperature is 20-35℃ .

We divided samples into 5 groups stochastically , each group with 4 replications . Each perennial ryegrass sample weighed500g . Distilled water and 0% ,0 .5% , 1% , 2% , 3% sodium bicarbonate solution were sprayed on Tetrgold perennial ryegrass forage samples . Samples were then exposed to the sun . After treatment were applied and samples were air dried , we determined the water content and leaf :stem ratio ,color ,smell , and ease of stem breakage .

Result and analysis

Table *Tetregold perennial ryegrass hay water content change and quality sense organ appraisal .*

processing %	Leaf-stem ratio	Color	Ease of stem breakage	Smell	Water content (%)
0 .5	1 .12 :1	Green shines	not easy	Light fragrant fragrance	82 .26
1 .0	1 .14 :1	Green	easy	Fragrant fragrance	80 .13
2 .0	1 .19 :1	Bottle green	easy	Rich fragrant fragrance	77 .13
3 .0	1 .17 :1	Bottle green	easy	Rich fragrant fragrance	78 .67
0	1 .09 :1	Greyishgreen	not easy	Slightly taste	87 .46

Data were analyzed using the single factor analysis of variance and multiple range test . The analysis of variance indicated the different density sprays affected the curing of perennial ryegrass hay differently ($p<0.01$) . The 2% sodium bicarbonate solution was the most effective . The data show the different solutions aided in leaf . The 2% solution significantly ($p<0.01$) increased the leaf :stem ratio 1 .32% compared to the control group .

Conclusions Although all 4 treatment solutionsaiding in speeding up the rate of forage drying ,the result indicated that the 2% sodium bicarbonate solution was best for curing perennial ryegrass . This had the lowest water content , highestleaf :stem ratio , and bestsmell .